

$$n_i(27\text{ C}) = 1.452 \cdot 10^{16} \text{ 1/m}^3$$

$$E_g(27\text{ C}) = 1.1151 \text{ eV}$$

$$V_{th}(27\text{ C}) = 0.02587 \text{ V}$$

$$\epsilon_{si} = 1.045 \cdot 10^{-10} \text{ F/m}$$

$$\epsilon_{ox} = 0.345 \cdot 10^{-10} \text{ F/m}$$

$$COX = 345.3 \text{ uF} \quad t_{ox} = 0.1 \text{ m}$$

$$PHI = 2V_{th} \ln \left[ \frac{N_{sub}}{n_i} \right]$$

$$V_{FBsub} = -\frac{PHI}{2} - \frac{E_g}{2} \quad \text{NMOS} \quad \text{N-Gate}$$

$$V_{FBsub} = \frac{PHI}{2} - \frac{E_g}{2} \quad \text{PMOS} \quad \text{N-Gate}$$

$$V_{TO} = V_{FBsub} + PHI + \gamma\sqrt{PHI} \quad \text{NMOS}$$

$$V_{TO} = V_{FBsub} - PHI - \gamma\sqrt{PHI} \quad \text{PMOS}$$